ATTORNEY DOCKET NO. 10030008-1

AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P. O. Box 7599
Loveland, Colorado 80537-0599

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Tesdahl et al

Serial No.: 10/672,804

Examiner: Kobert, Russell Marc

Filing Date: September 27, 2003

Group Art Unit: 2829

Title: CAPACITIVE SENSOR MEASUREMENT METHOD FOR DISCRETE TIME-SAMPLED SYSTEM FOR IN-CIRCUIT TEST

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria VA 22313-1450

TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

Sir:

Transmitted herewith is/are the following in the above-identified application:

- [x] Response/Amendment
- [ ] Petition to extend time to respond
- [ ] New fee as calculated below
- [ ] Supplemental Declaration
- [x] No additional fee (Address envelope to "Mail Stop Amendments")
- [ ] Other: (Fee $_____)

CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY						
(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT	(3) NUMBER EXTRA	(4) HIGHEST NUMBER PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	(6) RATE	(7) ADDITIONAL FEES
TOTAL CLAIMS	28	MINUS	28	= 0	x 50	$ 0
INDEP. CLAIMS	5	MINUS	5	= 0	x 200	$ 0
☐ FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+360	$ 0
EXTENSION FEE	1ST MONTH 120.00 ☐	2ND MONTH 450.00 ☐	3RD MONTH 1020.00 ☐	4TH MONTH 1590.00 ☐		$ 0
					OTHER FEES	$ 0
					TOTAL ADDITIONAL FEE FOR THIS AMENDMENT	$ 0

Charge $0 to Deposit Account **50-1078**. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account **50-1078** pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account **50-1078** under 37 CFR 1.16, 1.17, 1.19, 1.20 and 1.21. A duplicate copy of this transmittal letter is enclosed.

Respectfully submitted,

Tesdahl et al

By Jessica Costa

Jessica Costa
Attorney/Agent for Applicant(s)

Reg. No. 41,065

Date: 2/18/2005

Telephone No. (434) 823-2232

I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office on the date shown below:

Date of facsimile: 2/18/2005

Typed Name: Jessica Costa

Signature: Jessica Costa

Rev 10/04 (TransAmd)

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PATENT APPLICATION:
Serial No. 10/672,804

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FOR:
CAPACITIVE SENSOR MEASUREMENT METHOD FOR DISCRETE TIME SAMPLED SYSTEM FOR IN-CIRCUIT TEST

INVENTORS: Tesdahl et al.

GROUP ART UNIT: 2829

EXAMINER: Kobert, Russell Marc

DOCKET NUMBER: 10030006-1

PROVISIONAL ELECTION WITH TRAVERSE AND RESPONSE

Box Non-Fee Amendment
Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Responsive to the Office Action mailed 1/21/2005, in which a restriction requirement was made to one of the following inventions: Group I, Claims 1-22, drawn to an apparatus, classified in class 324, subclass 750; Group II, Claims 23-28, drawn to methods, classified in class 324, subclass 750, **Applicant hereby provisionally elects Group I (claims 1-22)** for further prosecution in the above identified application. This election is made **with traverse.**

1. Response to Requirement for Election of Invention

Where two or more related inventions are being claimed, the principal question to be determined in connection with a requirement to restrict or a rejection on the ground of double patenting is whether or not the inventions *as claimed* are distinct. If they are distinct, restriction may be proper. If they are not distinct, restriction is never proper.

The Examiner states that inventions I and II are related as product and process of use. MPEP § 806.05(e) states: The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product

or (2) the product as claimed can be used in a materially different process of using that product. The burden is on the examiner to provide reasonable examples that recite material differences.

The Examiner alleges that the product as claimed can be practiced by a plurality of methods, such as that disclosed in claims 23-28. However, the Applicant respectfully traverses. The methods disclosed in claims 23-28 each recite: stimulating with a known signal, sensing a signal, and correlating the sensed signal with said known signal; hence, they are not "materially different". Furthermore, the apparatus claims 1-22 each recite: a stimulating probe, a signal generator operable to generate a known signal, a sensing probe operable to sense a signal, and a signal correlator which performs signal correlation between the sensed signal and the known signal. These elements are each necessary to perform the methods claimed in claims 23-28, and hence are also not "materially different". Thus, the Examiner has not provided reasonable examples that recite material differences that show either that (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. Accordingly, the inventions as claimed in claims 1-22 and 23-28 are not distinct, and the requirement for restriction is therefore improper. Accordingly, the Applicant respectfully requests the Examiner to withdraw the restriction requirement with respect to Groups I and II.

2. Response to Requirement for Election of Species

The Examiner states that if invention I is elected, a further election of species is required as follows: (a) the species according to Fig. 2; (b) the species according to FIG. 10; (c) the species according to FIG. 12; and (d) the species according to FIG. 15. However, the Applicant hereby asserts that claim 1 is generic to each of these species. Claim 1 recites:

> An electrical integrity testing apparatus for testing electrical integrity of nets on a circuit under test, comprising:
> a stimulating probe couplable to a first end of a net of interest on said circuit under test;
> a signal generator couplable to said stimulating probe operable

to generate a known signal;

a capacitive sensing probe operable to capacitively couple a signal from a second end of said net of interest when said known signal stimulates said first end of said net of interest; and

a signal correlator which performs signal correlation on a digital representation of said capacitively coupled signal with said known signal based only on said capacitively coupled signal and an expected digital signature of said known signal.

The species according to FIG. 2 illustrates a stimulating probe couplable to a first end (41a) of a net of interest (42a) on said circuit under test (30); a signal generator (40) couplable to said stimulating probe operable to generate a known signal (27); a capacitive sensing probe (20) operable to capacitively couple a signal from a second end (43a) of said net of interest (42a) when said known signal (27) stimulates said first end (41a) of said net of interest (42a); and a signal correlator (60) which performs signal correlation on a digital representation (25) of said capacitively coupled signal (23) with said known signal (27) based only on said capacitively coupled signal (25) and an expected digital signature (29) of said known signal (27).

The species according to FIG. 10 illustrates a stimulating probe couplable to a first end (41a) of a net of interest (42a) on said circuit under test (30); a signal generator (40) couplable to said stimulating probe operable to generate a known signal (27); a capacitive sensing probe (20) operable to capacitively couple a signal from a second end (43a) of said net of interest (42a) when said known signal (27) stimulates said first end (41a) of said net of interest (42a); and a signal correlator (60) which performs signal correlation on a digital representation (output of 50) of said capacitively coupled signal (output of 20 passed through positioning controller 82 and sequencing controller 84 to A/D sampling circuit 50) with said known signal (27) based only on said capacitively coupled signal (output of 50) and an expected digital signature (29) of said known signal (27).

The species according to FIG. 12 illustrates a stimulating probe

couplable to a first end (41a) of a net of interest (42a) on said circuit under test (30); a signal generator (40a) couplable to said stimulating probe operable to generate a known signal (27); a capacitive sensing probe (20a) operable to capacitively couple a signal from a second end (43a) of said net of interest (42a) when said known signal (27) stimulates said first end (41a) of said net of interest (42a); and a signal correlator (60) which performs signal correlation on a digital representation (output of 50) of said capacitively coupled signal (output of 20a) with said known signal (27) based only on said capacitively coupled signal (coupled through multiplexer 84, sequencing controller 86 to A/D sampling circuit 50) and an expected digital signature (29) of said known signal (27).

The species according to FIG. 15 illustrates a stimulating probe couplable to a first end (41a) of a net of interest (42a) on said circuit under test (35a, see FIG. 16); a signal generator (40a) couplable to said stimulating probe operable to generate a known signal (27); a capacitive sensing probe (20a) operable to capacitively couple a signal from a second end (43a) of said net of interest (42a) when said known signal (27) stimulates said first end (41a) of said net of interest (42a); and a signal correlator (60) which performs signal correlation on a digital representation (output of 50) of said capacitively coupled signal (output of 20a) with said known signal (27) based only on said capacitively coupled signal (coupled through multiplexer 84, sequencing controller 86 to A/D sampling circuit 50) and an expected digital signature (29) of said known signal (27).

Accordingly, because claim 1 reads on each of the species of FIGS. 2, 10, 12 and 15 as identified by the Examiner, claim 1 is generic. Thus, election is species is respectfully traversed.

However, if claim 1 is held not to be generic, **the Applicant hereby elects with traverse the species according to FIG. 2 for further prosecution on the merits.** Claims 1- 6 are readable on the species according to FIG. 2.

3. Response to Requirement for Election of Sub-Species

The Examiner states that upon election of species within the elected invention I, a further election of sub-species is required as follows: (a) a classification function; (b) one or more filters; (c) a known signal comprising a coded pulse-train sequence and a signal correlation comprising cross-correlation of the digital representation of the signal with an expected digital signature of the coded pulse-train sequence; (d) a known signal comprising a square-wave pulse train and a signal correlation comprising auto-correlation of the digital representation of the signal with itself; (e) a known signal comprising a square-wave pulse train and a signal correlation comprising cross-correlation of the digital representation of the signal with an expected digital signature of the square-wave pulse train; (f) one or more capacitive sensing probes; and (g) a memory device.

If claim 1 is held not to be generic, **the Applicant hereby elects with traverse the sub-species (f) one or more capacitive sensing probes for further prosecution on the merits.** Claims 1- 6 are readable on the species according to sub-species (f) one or more capacitive sensing probes.

For all of the above reasons, the Applicant respectfully requests that the restriction requirement of Inventions I and II, and the restriction requirements of species and sub-species be withdrawn and each of claims 1-28 be examined on the merits.

Respectfully submitted,

Jessica Costa

February 18, 2005

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